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The U.S. Navy in the Pacific:
Past, Present, and Glimpses of the Future

Robert G. Weinland Center for Naval Analyses

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INTRODUCTION

It is one thing to observe the changes that have taken place over the last ten years in the size and character of the U.S. military presence in East Asia and the Western Pacific. It is quite another to forecast the nature of that presence ten years from now. One is, of course, tempted simply to extrapolate the past into the future.

Some succumb to that temptation. They look at the U.S. withdrawal from Vietnam and Thailand. They look at the reduction in the strength of the U.S. forces that remain in Korea and the Western Pacific. They look at the refocusing of U.S. security concerns on Europe. And based on what they see they conclude that the United States is retreating from Asia.

But simple extrapolation often misleads; and it clearly does so in this case. One reason is obvious: in concentrating on change one tends to neglect stability, and in certain fundamental respects the U.S. military presence in the Asian-Pacific region hasn't changed at all. There is another, less obvious but in the long run more important reason as well: the processes that brought about the changes that have taken place in that presence over of the last ten years, and those likely to produce change during the next ten years, are quite different.

Ten years ago the U.S. Pacific Command had far more men, ships, and aircraft than it has today. But ten years ago the United States was fighting a high-intensity war in Southeast Asia,

and the Facific Command's requirements for men and materiel (tactical air and ground forces in particular) were understandably very large. Today the United States is no longer at war and those requirements have been revised accordingly. Pacific Command's efforts are now concentrated on maintaining stability in Northeast Asia. It must also be prepared to conduct crisis-management operations in the Indian Ocean -- most importantly, to insure the continued flow of oil from the Perstan Gulf to the United States and its allies in both Europe and Asia. A different set of forces is required to carry out these tasks. I

This modification both in the use and in the strength and composition of U.S. forces in the Asian-Pacific region reflects more than just the end of the War in Vietnam. Other processes have had an impact as well. One was a fundamental rethinking of the role the United States ought to play in the international arena. A second was a redefinition of the threat posed to the United States, its allies, and its interests in Asia. A third has been an attempt to redress the imbalances that were allowed to develop in Europe while the United States was preoccupied with Vietnam. A fourth, the reduction in the overall strength of the U.S. Navy, will be discussed at some length below.

The magnitude and the origins of the changes that already have taken place in the U.S. posture, the changes that are occurring now in the international environment in Asia and the

Pacific, and the changes that might result from the current U.S. reappraisal of its naval forces all raise legitimate questions regarding the future of the Pacific Command and especially its naval component: the United States Pacific Fleet. The objectives of this discussion are to review and explain the most significant change that has taken place over the last decade in the Pacific Fleet — the reduction in its strength by more than half — and on the basis of what is going on now, to outline some of the changes that are and are not likely to be made in the future, especially in that component of the fleet deployed forward in Asian waters.

This concentration on naval forces should not obscure two facts: although probably the most useful (and certainly the most used), the Navy is not the only element of U.S. military power present or employable in Asia; and military forces are not the only instruments available to the United States for the implementation of its foreign policy. Nor, as indicated earlier, should concentration on what has changed obscure the fact that some things — such as the U.S. commitment to honor its obligations to its allies — have not changed.

Reappraisal, even revision, of means does not necessarily imply revision of ends.

DETERMINANTS OF THE U.S. POSTURE

Three factors play a major role in determining the strength and composition of the U.S. Pacific Fleet and the character of its deployments in Asian waters. None is completely independent of the others. All are important.

The first factor is the complex of threats perceived to be posed to the United States, its allies and its interests in the region. Now and for the foreseeable future, the Soviet Union can be judged the most important source of such threats.* This has not always been the case, however, and the Soviet Union should not be seen as their only source.³

The second factor is the estimated requirement for U.S. forces in the region. This estimate has two components. One is derived from assessments of the ability of allies to defend themselves and their vital interests. The other is derived from identification of the forces necessary for the direct defense of the United States (given a certain strategy for the conduct of that defense), the additional forces necessary to augment allies' defenses (given established policies regarding the nature and extent of such assistance and a certain strategy for providing

^{*}This is not the appropriate point for an extended discussion of threats, either real or perceived. Suffice it to say that, in the opinion of this observer, and in regard to the three values noted (self, allies, interests), the Soviets are the primary source of threat in northeast Asia and the Pacific. That threat is significant. And it is increasing -- albeit gradually.

it), and whatever else may be involved in the protection and promotion of U.S. overseas interests.

The third factor is the actual availability of U.S. forces for use in the region. Availability has three antecedents. One is the size and configuration of the U.S. force structure. Another is competition among requirements for those forces. The last is the priorities according to which those forces are allocated to meet these requirements.

This discussion concentrates on two of those factors: requirements for and availability of forces. Neither is as well or as widely understood as it should be; and understanding the dynamics of both is important. It is especially important when, as in this discussion, one focuses not on a whole (the U.S. Navy) but on one of its parts (a constituent fleet). It is natural to assume that changes in that fleet are linked to developments in its operating environment, and very often that is so. But sometimes it is not.

Some of the changes that have taken place in the Pacific Fleet over the last ten years are direct reflections of specific developments in the region; they would not have taken place had those developments not occurred. Other changes, however, although played out in the Pacific, had their origins elsewhere; they would have taken place regardless of what was going on in the region. Confusing the two can lead to misunderstanding both the intentions behind, and the limits on, such changes.

WHAT HAS CHANGED

There are two quite different and equally valid viewpoints from which to examine what has happened to the U.S. naval posture in the Pacific over the last decade. One is the view from Asia. The other is the view from the United States.

Both focus on the same fact. The U.S. Pacific Fleet has been reduced in strength by more than half. It had 503 ships in 1968; in early 1978 it had 206 (see table 1).

From the Asian perspective, among the first things likely to be noted are the consequences of this reduction. One of the most obvious of these is the reduction in the strength of that portion of the force deployed in the Western Pacific: the U.S. Seventh Fleet. In mid 1968, 178 ships were operating with the Seventh Fleet; in early 1978 only 45 were deployed there (see table 2). The reduction in the size of the Seventh Fleet's immediate backup force — the remainder of the Pacific Fleet — is not likely to escape attention either.

From the U.S. perspective, the first thing likely to be noted is the primary cause of the reduction in the strength of the Pacific Fleet: the reduction in the overall size of the U.S. Navy. In 1968, its active general purpose force strength was 932 ships; by early 1978 that number had dropped to 418 (see table 1).

Changes of this magnitude are dramatic under any circumstances. This reduction in the overall strength of the U.S. Navy

TABLE 1: US NAVY GENERAL PURPOSE FORCE STRENGTH AND DISPOSITION -- 1958, 1968, 1978 (1)(2)

1958 1968 1978
ATLANTIC PACIFIC ATLANTIC PACIFIC

SHIP TYPES Aircraft Carriers						
Attack	6*	g	6*	9	7*	6
ASW	6	9 5	4	4	~ ~ ~	
Surface Combatants	•	•	•	•		
Battleship				(1)		
Cruiser	7	9		(13)	11	16
Destroyer	140	104		240)	34	30
Escort/Frigate	49	37	•	(59)	32	33
Patrol	43	37		(33)	2	1
Attack Submarines	74	43	1	115)	43	36
Amphibious Warfare	/ 3	43	· ·	1131	43	20
Vessels	39	86	,	1571	21	22
				157)	31	32
Mine Warfare Vessels	42	43		(86)	.3	
Auxiliaries	122	1.24	(247)	49	, 52
Fleet Totals (General Purpose	400	4.60	400			
Forces)	487	463	429	503	212	206
Navy Totals (General Purpose						•
Forces)		901		932		418

^{*}Includes one unit for pilot training (no active air wing).

(1) Sources:

- 1958 -- Author's estimates, based on information presented in: James C. Fahey, The Ships and Aircraft of the United States Fleet, 7th Ed., Falls Church, VA.: Ships and Aircraft, 1958.
- 1968 -- Detailed information on fleet disposition in 1968 is not available. That presented here is extracted from: Department of Defense Annual Report for Fiscal Year 1968, Washington, D.C.: GPO, 1971, pp. 317, 318. Information on overall strength (in parentheses) supplied by the Office of Naval History.
- 1978 -- "Statement of Admiral James L. Holloway III, USN, Chief of Naval Operations, Concerning the Fiscal Year 1979 Military Posture and Fiscal Year 1979 Budget of the United States Navy," np (Washington, D.C.) processed, nd (1978), p. 73.
- (2) Data for 1958 and 1968 are illustrative only. Since the structure of the active fleet changes continuously, as new units are commissioned and old units retired, it is exceedingly difficult to reconstruct the precise composition of the force at any particular point.

TABLE 2: U.S. SEVENTH FLEET GENERAL PURPOSE FORCE STRENGTH -- 1968 AND 1978

, , ,		1968 ¹	1978 ²
Aircraft Carriers		6 *	2**
Cruisers	•	4	5
Destroyers		40	6
Esconts/Frigates		10	8'
Attack Submarines		9	6
Amphibious Warfare Vessels		32	8
Mine Warfare Vessels		13	400 404 6 ₁₀
Auxiliaries		64	10
,	Fleet Total	178	45

^{*4} CVA, 2 CVS

^{**2} CV

 $^{^{1}\}mathrm{As}$ of 15 July 1968. Information supplied by the Office of Naval History.

²As of "a representative day," (presumably in early 1978). Extracted from a table describing fleet readiness status in: "Statement of Admiral James L. Holloway III, USN, Chief of Naval Operations, Concerning the Fiscal Year 1979 Military Posture and Fiscal Year 1979 Budget of the United States Navy," np (Washington, D.C.) processed, nd (1978), p. 78. Actually, the forces listed here are depicted in that table only as being assigned to CINCPACFLT, and deployed. Seventh Fleet forces are, however, both.

was especially so. For one thing, it brought an end to an era of relatively high and stable force levels. Fluctuations in the size of the Navy had occurred before, most notably the reduction in strength from the World War II high of 5718 ships to the pre-Korean War low of 647. But after the Korean War there had been only comparatively minor fluctuations around a comparatively high figure: the average active strength of the Navy between 1946 and 1972 was 978 ships. Secondly, in contrast to the immediate post World War II reduction in strength, which was for the most part accomplished by transferring units to the reserve and as a result could be readily reversed, this reduction was accomplished primarily by sending them to the scrap yard.

The differences between these two reductions in overall U.S. naval strength are important. The immediate post World War II cutback was initiated because then existing naval force levels were considered to be in excess of requirements. The reduction in strength in the early 1970s was carried out despite the fact that then existing naval force levels were considered to be below requirements — because, to put it bluntly, it had to be. A significant fraction of the Navy was reaching the end of its useful life. These ships had been built during or shortly after World War II. Many had been modified subsequently in the attempt to keep pace with developments in sensors and weaponry, but technology was forging ahead and it was not considered cost-effective to attempt to modify them further. They had to be replaced. In or-

do: to help pay for their replacements, which clearly were going to be expensive, current costs had to be reduced substantially.*

This meant significant numbers of the older, less effective ships in the force had to go. They went.

The ending of the War in Vietnam certainly facilitated this process. So did the redefinition of the threat considered to be posed to the United States, its allies, and its interests in the Asian-Pacific region -- in particular, the recognition of the impact on the region of intensified Sino-Soviet conflict,** the concomitant reduction in the perceived likelihood that the United States would have to fight a major war against the Peoples Republic of China, and the consequent modification in overall U.S. military requirements (from force levels sufficient to fight two and one half to those sufficient to fight one and one half simultaneous wars).

But neither of these developments was the driving factor in the reduction in the strength of the U.S. Navy. Given the resource reallocations brought about by Vietnam, it would have occurred anyway.

^{*}Ordinarily, resources would have been provided well before such retirements became necessary so this replacement process could proceed in an orderly fashion. In this case, the War in Vietnam had absorbed those resources.

^{**}Perceived as a potential inhibition to aggressive action on the mainland by either party.

The reduction in the overall strength of the U.S. Navy, however, was the driving factor in the reduction in the strength of
the Pacific Fleet. And the latter, rather than any U.S. desire to
withdraw from Asia, was the cause of the eventual reduction in the
strength of its forward deployments to the Western Pacific. U.S.
ends had not changed. The Pacific Fleet simply no longer possessed the means to continue steaming as before.

WHAT HAS NOT CHANGED

Two apparent constants stand out against the background of these changes. One is the strength of the U.S. commitment to honor its obligations to its allies. The other is the pattern of disposition and deployment of those naval forces the United States has available. Theoretically, both of these could have changed as well; but they haven't.*

The U.S. commitment to honor its obligations is a matter of principle, not expediency. As such, it applies at all times and in equal measure to each alliance relationship. The current U.S. emphasis on increasing the military capabilities of NATO does not, for instance, imply that the United States considers its obligations to its European allies more important than its obligations to its allies in Asia, only that it considers the current situation in Europe to be more threatening militarily than the current

^{*}Some of those obligations have, however, been modified in treaty renegotiations.

situation in Asia, and hence more in need of attention -- and corrective military action.⁷

Evidence for the consistency of the U.S. commitment can be found in a variety of places, including the geographical disposition of its naval forces. For years, these forces have been divided almost equally (55%-45%) between the Atlantic and Pacific Fleets. Most deviations from this norm are readily explicable. Some reflect technical considerations.* Others reflect operational considerations. The latter are more indicative of U.S. intent. The most significant of these have occurred when the United States was engaged in combat (in Asia) and forces were withdrawn from the fleet that was not fighting (the Atlantic Fleet) to augment the fleet that was (the Pacific Fleet).

During the War in Vietnam, for example, the United States stripped many of the more capable systems from its forces deployed in or earmarked for Europe and sent them to Southeast Asia. When the war ended, it acted to reverse that process and restore the geographical balance. Throughout, its commitment to honor its obligations to its European allies remained unchanged, even though the means it had on hand to do so varied significantly — as good an indication as any that the strength of U.S. forces

^{*}The major deviation is in strategic forces. Target locations and missile ranges dictate that some 75% of the U.S. ballistic missile submarine force be located in the Atlantic.

immediately available to assist its allies is only, and should not be taken as more than, an imperfect indicator of the strength of this commitment. Means are not ends.

This comment notwithstanding, many hold that a second major feature of U.S. naval policy, the importance accorded the maintenance of substantial forward deployments (the Sixth Fleet in the Mediterranean, the Seventh Fleet in the Western Pacific), does provide additional evidence for the consistency of this commitment. 10 And this view obviously has had a significant effect on U.S. naval practice. Ten years ago, when the U.S. Navy had a much larger force to draw upon for such deployments, maintaining substantial forces forward tended to stretch capabilities uncomfortably. Those forward deployments continue today, despite the fact that with a much smaller force to draw upon they stretch capabilities painfully.*11 One of the principal reasons why the United States maintains this posture, in spite of the sharply increased costs of doing so, is the apprehension that its allies (and their potential opponents) would interpret a change in its forward deployments as a reflection of a change in its willingness to honor its obligations. 12 And this is one area where the

^{*}Overseas home-porting, like that of the aircraft carrier Midway and other forces in Japan, helps relieve, but does not eliminate, this burden.

United States considers it vital that its intentions not be misunderstood -- i.e., that means not be taken for ends.

THE CURRENT SITUATION

Most of the processes that brought about the changes outlined above have run their course. New forces are at work now, and it is these, rather than their predecessors, that will have the greatest impact on the future strength and composition of the U.S. Pacific Fleet, and the character of its deployments in Asian waters. All three of the determinants of the U.S. naval posture in the Pacific identified at the outset of this discussion are involved.

The first of those determinants was the perceived threat to the U.S., its allies, and its interests. Certainly the most immediate threat to these values now and for the foreseeable future is that represented by the combination of the increasing dependence of the industrialized nations on Persian Gulf oil and the obvious fragility of the flow of oil to them from the Gulf -- a fragility that on the one hand already has been demonstrated at the source and on the other hand is inherent along sea lines of communication. A less imminent but potentially far more important threat to these values is that posed by another combination: increasing Soviet naval capabilities in the Pacific and increasing Soviet willingness to employ its forces in peacetime to advance its own state and ideological interests overseas -- especially,

but by no means exclusively, in the Third World. 14 The threat posed by conflicts resulting from increasing competition for control of the resources located in and under the sea is difficult to assess, but cannot be overlooked. 15

The second determinant was the requirement for U.S. forces. Allied capabilities to defend themselves and their vital interests are increasing, and should continue to do so. However, they are not likely to increase to the point where they offset the principal threats outlined above. Thus the requirement for U.S. forces to augment allied defenses -- particularly those of Japan and Korea -- in time of need can be taken as a given for the foreseeable future. On the other hand, precisely how the United States will render that assistance appears not to be as certain. The strategies that have prevailed until now are being reconsidered, and the outcome of that process is likely to have a significant impact on the composition of Pacific Fleet forces, the stance they adopt in peacetime, and the character of the operations they will undertake in wartime. 16 The fact that the introduction of new weapons and sensors has already increased the combat capabilities of the Soviet navy substantially, and the prospect that it will continue to do so, also will have a significant impact on U.S. requirements.17

The third determinant of the U.S. naval posture in the Pacific was the availability of forces. This remains the key to the

future of that posture, but on entirely different grounds now. The decline in overall U.S. Naval strength appears to have ended. Active strength can now be expected to stabilize near its present level and then grow somewhat.* Meanwhile, the capabilities of exiting units are being upgraded significantly as they receive new types of offensive and defensive weapons systems and sensors. HARPOON, the F-14/PHOENIX combination and towed array sonars are good examples of these improvements. To some extent, this increase in unit capability offsets the decline that has taken place in the Navy's numerical strength and at the same time reduces the number of replacement units that must be acquired -- 600 or so of today's units should provide a greater overall capability than the 900 or so of years past. The capabilities of potential opponents have increased as well, however, and, while the "reach" of naval combat systems has increased markedly, the simple fact remains that no ship can be in two places at the same time.

Competing requirements, and priorities for the allocation of forces among those requirements, are likely to play an increasing role in determining the availability of forces for use in the Pacific. Some of this competition is geographical: Asian versus European requirements, the requirement to not only assist in the direct defense of allies in Europe and Asia but insure the flow of

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oil to them from the Persian Gulf. But much of this competition isn't geographical.

Competition among differing peacetime requirements and between peacetime and wartime requirements in the same region is increasing. As noted above, the costs of maintaining substantial forward deployments in peacetime have increased significantly. Some of the direct costs of these deployments can be offset readily; many of the indirect costs cannot, especially where opportunities to employ resources differently have been foregone in order to keep forces forward. One of these opportunity costs is a reduction in the overall combat readiness of the force supporting those deployments. Another is a reduction in the ability of that force to deploy substantial numbers of additional units on short notice for crisis-management operations. 18 As the capabilities of potential opponents increase, raising the threshhold of credibility for the deterrent arrayed against them, the importance of having the flexibility to concentrate larger and more powerful groupings of forces whenever and wherever necessary also increases, and with it the true magnitude of those opportunity costs.

THE FUTURE

It is of course impossible to predict what the future will bring. It is possible, on the other hand, to narrow the range of uncertainty about the future -- to identify things that are not

likely to occur, and say something about the things that are. Or, it is possible to do so provided some understanding of the relevant processes and knowledge of what impels them is available.

Some of both is available in this case, enough to make it possible to avoid drawing the wrong conclusions, but not enough to make it possible to state with certainty what will happen. On the one hand, decisions crucial to the future of the U.S. Navy as a whole and by extension the future of the Pacific Fleet have yet to be made. On the other hand, not all the consequences of those decisions that already have been made are readily predictable. These decisions must first be transformed into policies, and those policies put into practice, before their results can be known with any confidence.

What follows is an attempt to outline three areas in which change in the U.S. naval posture in the Pacific is conceivable, the conditions under which such changes might occur, and the likelihood that they will in fact take place. One such area concerns the composition of the fleet and reflects the current U.S. reappraisal of the utility of naval forces. The second has to do with the role of the Pacific Fleet in conflicts outside the Pacific. The third deals with forward deployments and the problems of meeting Allied expectations.

Reappraisal

Several years ago, the United States began an intensive reappraisal of its fundamental requirements for naval forces. still underway. Three principal questions are being addressed: the specific roles that naval forces should play in peacetime as well as wartime, the forces most appropriate for those roles -- in terms of both the characteristics of individual ship (and aircraft) types and of the number of each type that should be included in the force -- and the optimal geographical disposition and mode of deployment of this force.* Two additional questions are involved in this reappraisal. One concerns the threat posed to existing U.S. naval forces by the forces of potential opponents -- especially the Soviet Union -- and the impact of that threat on the ability of U.S. naval forces to accomplish their assigned tasks. 19 The second question concerns the ability of the United States to design and construct a different navy, one that will be not only less vulnerable to, but more effective in the face of, that opposition.

There are few, if any, obvious answers to these questions (if there were, this reappraisal would have been completed in short order). And it is difficult to believe that the more fundamen-

^{*}The balance between the forces maintained in the Atlantic and those maintained in the Pacific; the balance between forces continuously deployed forward and those kept at the ready in home waters for deployment in specific contingencies.

tal issues involved will be resolved satisfactorily in the near term. The eventual outcome of this process is bound to be influenced heavily not only by estimates of present and future threats and the forces best suited to countering them, but also by the specific strategies considered most appropriate for the employment of those forces. As a result, it is difficult to predict what that outcome will be.

On the other hand, it is not difficult to identify the two issues that will go furthest in determining the eventual shape of the U.3. Navy. One concerns the continuing utility of the aircraft carrier, the other concerns the criteria by which decisions about the future naval force structure are made -- in particular, the extent to which the immediate, theater-specific requirements of one particular scenario, a full-scale conventional war in Europe, are to govern the selection of optimal unit capabilities and a mix of forces for the Navy as a whole, including that portion of the Navy intended for use in other theaters like the Pacific. 20

The resolution of these issues will have little immediate impact on the shape of the Navy, and by extension the Pacific Fleet. Fundamental modification of the force structure can take

place only in the long run, and the U.S. Navy of ten years hence necessarily will look very much like that of today.*

But modification of the force structure is not the only option theoretically available. Significant changes in the posture of the Navy -- modifications in the geographical disposition and mode of deployment of existing forces -- could be effected in a comparatively brief period. Many factors argue against such changes. Not the least of these is the concern noted above that alteration of long established patterns of operation might be perceived not as what it would be (a revision of means) but as what it would not be (a revision of ends). Like the earlier reduction in overall naval strength, however, such modifications might prove unavoidable in the end. And there are good reasons, most military but some political, for making those changes.21

Wartime Employment

It can be argued (although one shouldn't attempt to take the argument too far) that earlier, when the U.S. Navy was numerically stronger, when many of the tasks it might be called upon to perform were less demanding, and when the combat capabilities of potential opponents like the Soviet Navy were not what they are today, it could concentrate in any region forces adequate to accomplish those tasks, and sustain them there for an extended

^{*}For instance, even if it were concluded that the aircraft carrier should be abandoned -- which is extremely unlikely -- that decision could not be implemented until alternative means of performing the carriers' current functions had been developed and those new forces had been acquired in adequate numbers.

period, without placing excessive strain on the entire system — in particular, without necessitating the withdrawal of forces in significant numbers from one ocean to augment those in another. That clearly is not the case today (and has not been for some time).²²

There are three regions of major concern to the United States in which employment of its military forces is readily conceivable. These are the European-North Atlantic region, the Middle East, and the Asian-Pacific region. The United States maintains significant military forces in the first and last of these regions, but very little in the middle. The threats posed in each, and the forces immediately available to deal with them, are, however, not necessarily in balance.

The military threat in the European-North Atlantic region is clearly the most intense. The availability of forces to deal with threats in the Middle East is clearly the most problematic.

Should one or another of these threats materialize, the United States will have to concentrate forces in the appropriate place that are adequate to deal with the problem. Given the situation outlined above, that probably will require shifting forces in significant numbers from one region to another.

Precisely what forces might be transferred from where to where would, of course, depend on what was going on in the region to which they might be sent. But it would also depend on what was considered likely to occur in the region from which they might be

withdrawn -- especially, what might occur if those forces were withdrawn that probably would not occur if they remained, the sequence in which those events might take place, and the amount of time likely to be available to cope with them.

The Pacific Fleet is often viewed as the prime source of augmenting forces for contingencies in other areas, especially a war in the European-North Atlantic region. In the absence of viable alternatives, it clearly is. If a European war did occur, it is not difficult to foresee one thing that might and one thing that would not happen. First, if necessary, forces undoubtedly would be withdrawn from the Pacific for use in the Atlantic. But, second, what was withdrawn undoubtedly would be determined by net requirements. Such transfers would not take place unless it seemed clear that they would solve a greater problem in the Atlantic than they created in the Pacific.

The Pacific Fleet is also a prime source of forces for operations in the Middle East. This is especially the case in situations where it is necessary to insure the continued flow of oil to the United States and its allies. Should that flow be threatened, forces undoubtedly would be moved from the Pacific to the Indian Ocean to protect it. But again, net requirements would prevail. The United States, for instance, has an obligation to assist Japan in defending itself. The defense of Japan, however, clearly now includes the defense of its oil supplies.²³ Where threatened, both must be protected; but this must be accomplished without

creating excessive imbalance between the forces protecting the nation itself and those protecting its lifelines. And the United States must act to protect the flow of oil to itself, as well as to meet its obligations to its allies. All of which reinforces the observation that in the end net requirements, rather than those specific to one or another conflict scenario, are most likely to determine what forces, if any, are redeployed in wartime.

That, in turn, raises another point. Naval forces can, and under certain circumstances undoubtedly would, be transferred from the Pacific to other regions. But this is not a one way street. Under other circumstances, should the net requirement there be greater, forces undoubtedly would be transferred from other regions to the Pacific. It is worth remembering that, twice now, this already has occurred.

Peacetime Deployment

The fact that the United States is on the one hand demonstrably willing and able to move forces when and where they are needed most in wartime, and is on the other hand extremely hesitant to modify the established pattern of forward deployment in peacetime, appears paradoxical. As indicated above, however, its reservations about modifying its peacetime deployments reflect real concerns, most of which are political in nature.²⁴

One of these is the possibility that, should the Fleet's presence in the forward area be other than continuous, the local balance of power would be subject to temporary distortions, and potential opponents might find the temptations of adventurism irresistable. Another, and in many ways more compelling concern is that, unless U.S. forces were present to provide visible assurance, allies might begin to Joubt the strength of the U.S. commitment to honor its obligations to them. Those are good reasons for retaining the present posture.

There are also good reasons for changing that posture -making it easier to concentrate forces when and where they are needed most, not only in wartime but in peacetime as well. of these reasons are military in nature; some, however, are political. 25 The primary costs of maintaining the present posture have been noted above: reduction in the overall combat readiness of the force, reduction in surge capability for crisis-management operations. Reducing the requirement to maintain a substantial portion of the fleet deployed forward at all times would permit a larger proportion of the whole force to be deployed when contingencies arose, and should insure that the forces deployed in those situations were more fully combat ready. Exhancing combat readiness enhances deterrence; enhancing the strength of forces available for crisis-management operations does the same. Given the increasing naval and other military capabilities of the Soviet Union, and their demonstrated readiness to employ those capabilities in pursuit of their overseas interests, such enhancement appears necessary. 26

This brings up a second apparent paradox. Potential opponents -- including the Soviet Union -- recognize the fact that, when required, the United States has the willingness and capability to marshal formidable forces wherever required to counter their actions. This tends to make adventurism a potentially more costly and hence less attractive proposition for them.

Soviet behavior in the Indian Ocean, for example, has been remarkably restrained. Although they maintain naval forces in the region (roughly 18 units, somewhat less than half of which are combatants) that are on the average superior to those the United States maintains there (a command ship and two destroyers, augmented for brief periods several times each year by a carrier or cruiser battlegroup), they do very little with these forces. can be argued (although, once again, one shouldn't attempt to take the argument too far) that a major reason for this Soviet restraint has been the likelihood that the United States would deploy forces into the region that could both deny them the achievement of adventuristic objectives there and in the process make them pay an excessive price for having tried. In short, it can be argued, to the extent that the Soviets have had adventuristic ambitions in the region they have been deterred from prosecuting them. ever, to the extent that the potential U.S. reaction to their actions has an important influence on their behavior -- and

it is difficult to think of an external factor of greater potential importance to the Soviets -- it is the prospect of marshalling this commanding force, not the routine presence of those two destroyers, that exerts this inhibiting influence.

Paradoxically, it is not at all clear that allies have the same appreciation of the situation as potential opponents, that what most effectively deters one's enemies -- the ability to muster a superior force where and when it counts the most -- reassures one's friends. As a matter of fact, it is not at all clear precisely what does reassure allies.

Is it appearances? Or is it realities? Is it the continuous presence of the Sixth and Seventh Fleets in the vicinity, or the overall combat capabilities of the Atlantic and Pacific Fleets from which they are drawn? Surely the forces deployed forward can in any event render significant services; but, just as surely, given the increasing capabilities of potential opponents and the expanding scope of the threats that must be dealt with, should those threats actually materialize, it is the capabilities of the entire force that will in the end decide the issue.

If it is the case that what effectively deters potential opponents also adequately reassures allies, then the allies should say so. This would relieve U.S. apprehensions about revamping its peacetime deployments to increase the readiness of its forces for crisis-management and combat, in the process enhancing its ability

to assist its allies when that assistance is most needed -- in a "crunch." It could then feel free to treat its forces not as what they can never become -- ends in themselves -- but as what they can only be -- simply means, hopefully adequate, to do whatever most needs to be done, wherever it needs doing, in peacetime as well as in wartime.

If this is not the case, if more is required to reassure allies than to deter potential opponents, the allies should feel free to say so. This is one area where they can have a direct impact on what the United States does. Although liable to prove dysfuntional in the long run, continued compromise for immediate ends is possible. Only means are involved.

SOURCES

- 1. For a recent and authoritative discussion of the U.S. Pacific Command see: Admiral Maurice F. Weisner, USN, "The U.S. Posture in Asia and the Pacific: The View from CINCPAC," Strategic Review 6-3 (Summer 1978), pp. 41-47. For a good general discussion of the U.S. Navy see: Bruce F. Powers, "The United States Navy" in: James E. Dornan, Jr. (ed.), "The American Military Machine," London: Hamlyn/Salamander Books, forthcoming (1978). A somewhat dated but still very useful description of the U.S. Seventh Fleet can be found in: Vice Admiral George P. Steele II, USN (ret.), "Ready Power for Peace -- The U.S. Seventh Fleet," U.S. Naval Institute Proceedings, 102-1 (January 1976), pp. 24-30.
- 2. Recent U.S. use of its military forces -- particularly its naval forces -- is analyzed in: Barry M. Blechman and Stephen S. Kaplan, Force Without War: The U.S. Armed Forces as a Political Instrument, Washington DC: The Brookings Institution, forthcoming.
- 3. See, for instance: Guy J. Pauker, Military Implications of a Possible World Order Crisis in the 1980s," Santa Monica, CA.: Rand Corporation, R-2003-AF, November 1977.
- 4. Information supplied by the Office of Naval History.
- 5. Ibid.
- 6. How and why this reduction in the strength of the U.S. Navy took place is described in some detail in: Admiral Elmo R. Zumwalt, Jr., USN (ret.), On Watch: A Memoir, N.Y.: Quadrangle/The New York Times Book Co., 1976. See especially "Part II, Platforms and Weapons," pp. 57-164.

Contract the second of the sec

- 7. "Remarks Prepared for Delivery by the Honorable Harold Brown, Secretary of Defense, to the Los Angeles World Affairs Council, Beverly Wilshire Hotel, Los Angeles, California, Monday, February 20, 1978," Washington, DC: Department of Defense, processed, February 20, 1978.
- 8. Lieutenant Commander Kenneth R. McGruther, USN, "The Dilemma of the U.S. Pacific Fleet," <u>U.S. Naval Institute Proceedings</u>, 104-6 (June 1978), pp. 27-33.
- 9. Zumwalt, op. cit,

- 10. For a well-considered exposition of this position see: F.J. West et.al., "Toward the Year 1985: The Relationship Between U.S. Policy and Naval Forces in the Pacific," in: Environments for U.S. Naval Strategy in the Pacific-Indian Ocean Area, 1985-1995, Newport, R.I.: U.S. Naval War College, 1977, pp. 308-460; see also Weisner, op. cit.
- 11. The Navy's efforts to maintain this posture are discussed in:
 Robert G. Weinland, "A Somewhat Different View of the Optimal
 Naval Posture," paper prepared for delivery at the 1976 Convention of the American Political Science Association (APSA/
 IUS Panel on "Changing Strategic Requirements and Military
 Posture), The Palmer House, Chicago, IL., September 2, 1976,
 (reprinted as Professional Paper No. 214 by the Center for
 Naval Analyses, Arlington, VA., June 1978).
- 12. "Sea Plan 2000, Naval Force Planning Study, Unclassified Executive Summary," np (Washington DC, Department of the Navy), processed, nd (April 1978).
- 13. Brown, op. cit.
- 14. Soviet activism in the international arena is analyzed in depth in: Bradford Dismukes and James M. McConnell et. al., Soviet Naval Diplomacy, Arlington, VA.: Center for Naval Analyses (to be published commercially in 1979).
- 15. One of the more cogent discussions of this problem is to be found in: Admiral of the Fleet of the Soviet Union S.G. Gorshkov, "Navies in War and Peace: Some Problems in Mastering the World Ocean," Morskoi sbornik no. 2, 1973, (February 1973), pp. 13-25.

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- 16. McGruther, op. cit.
- 17. A comprehensive treatment of naval forces in Asian waters can be found in: Barry M. Blechman and Robert P. Berman (eds.)

 Guide to Far Eastern Navies, Annapolis, MD.: U.S. Naval Institute, forthcoming (November 1978). See especially the chapter by the two editors entitled "The Naval Balance in the Western Pacific."
- 18. "Statement of Admiral James L. Holloway III, USN, Chief of Naval Operations, Concerning the Fiscal Year 1979 Military Posture and Fiscal Year 1979 Budget of the United States Navy," np (Washington, DC), processed, nd (1978).

- 19. Admiral Stansfield Turner, USN, and Commander George Thibault, USN, "Countering the Soviet Threat in the Mediterranean," U.S. Naval Institute Proceedings 103-7 (July 1977), pp. 25-32; Barry M. Blechman et. al., The Soviet Military Buildup and U.S. Defense Spending, Washington, DC.: The Brookings Institution, 1977.
- 20. "Sea Plan 2000" op. cit.
- 21. Weinland, op. cit.
- 22. West et. al., op. cit.
- 23. Leslie H. Brown, American Security Policy in Asia, London: The International Institute for Strategic Studies, Adelphi Papers no. 132, 1977.
- 24. <u>Ibid.</u>, "Sea Plan 2000" op. cit.
- 25. Weinland, op. cit.
- 26. The dynamics of superpower interaction are discussed at length in Dismukes and McConnell et. al., op. cit.

CNA Professional Papers - 1973 to Present*

₹ Î03

Friedhelm, Robert L., "Political Aspects of Ocean Ecology" 48.pp., Feb 1973, published in Who Protests the Oceans, John Lewence Hargiove (ed.) (St. Paul: West Public, Co., 1974), published by the American Society of International Law) AD 767-936

PP 104

Schick, Jesk M., "A Review of James Cable, Guntuest Diptomacy Political Applications of Limited News Force," 5 pp., Feb 1973, (Reviewed in the American Political Science Review, Vol. LXVI, Dec 1972)

PP 105

Corn, Robert J. and Phillips, Gary R., "On Optimal Correction of Gunfire Errors," 22 pp., 85% 1973, AD 761 674

PP 108

Steletf, Peter. H., "User's Guide for Generalized Fester Analysis Program (FACTAN)," 35 pp., Feb 3873, (Instudes an addendum published Aug 1974) AD 758 824

PP 107

Steletf, Peter H., "Releting Factor Analytically Detived Measures to Exogenous Variables," 17 pp., May 1973. AD 758 820

PP 108

McConnett, James M. and Kelty, Anne M., "Superpower Nagal Diplomacy in the Indo-Pakistani Crisis," 14 pp., 6 Feb 1973, (Published, with revisions, in Survival, Nov/Dec 1973) AD 761 675

-- 104

Berghosfer, Fred G., "Seleries-A Framework for the Study of Trend," 8 pp., Dec 1973, (Published in Review of Income and Wealth, Series 18, No. 4, Dec 1972)

P 116

Augusts, Joseph, "A Critique of Cost Analysis," 9 pp., Jul 1973, AD 766 376

P 111

Herrick, Robert W., "The USSR's "Blue Belt of Defense" Concept: A Unified Military Plan for Defense Agennt Seaborne Nuclear Attack by Strike Carriers and Polaiis/Possidon SSBNs," 18 pp., May 1873. AD 786.375

PP 11

Gintberg, Lawrence H., "ELF Atmosphere Noise Level Statistics for Project SANGUINE," 29 pp., Apr 1974, AD 786 980

PP 113

Gintberg, Lawrence H., "Propagation Anomalies During Project SANGUINE Experiments," 5 pi., Apr 1974, AD 786 988

DB 11

Meloney, Arthur P., "Job Satisfaction and Job Turnquer," 41 pp., Jul 1973, AD 768 410

PP 110

Silverman, Lester P., "The Determinants of Emergency and Elective Admissions to Hospitals," 145 pp., 18 Jul 1973, AD 766 377

PP 118

Rehm, Allan'S., "An Assessment of Military Operations Research in the USSR," 19 pp. Sep 1973, (Reprinted-from Procasiones, 30th Military Operations Research Symposium (U), Secret Dec 1972) AD 770 116

PP 11

McWhite, Peter B. and Ratliff, H. Donald,* "Defending a Logistics System Under Mining Astack,"** 24 pp., Aug 1976 (to be submitted for publication in Navel Research Logistics Quarterly), presented at 44th National Meeting, Operations Research Society of America, November 1973, AD A030

*University of Florida

**Research supported in part under Office of Naval Research Contract N00014-68 0273 0017

PP 111

Berfoot, C. Bernard, "Markor Duels," 18 pp., Apr 1973, (Reprinted from Operations Research, Vol. 22, No. 2, Mar-Apr 1974)

9 119

Stoloff, Peter and Lockman, Robert F., "Development of Navy Human Relations Questionnaire," 2 pp., May 1974, (Published In American Psychor legical Association Proceedings, 81st Annual Convention, 1973) AD 779 240

PP 120

Smith, Michael W. and Schrimper, Ronald A.,*
"Economic Analysis of the Intracity Dispersion of Criminal Activity," 30 pp., Jun 1874, (Presented at the Economics Society Meetings, 30 Dec 1873) AD 780.838

*Economics North Carolina State University

FP 121

Devine, Eugene J., "Procurement and Retention of Navy Physicians," 21 pp., Jun 1974, (Presented at the 49th Annual Conference, Western Economic Association, Les Veges, Nev., 10 Jun 1974) AD 780 539

PP 122

Kelly, Anne M., "The Soviet Naval Presence During the trae-Kuwaid Border Dispute: March-April 1973," 34 pp., Jun 1974, (Published in Soviet Naval Policy, ed. Michael MccGwire; New York: Presper) AD 780 592

PP 123

Petersen, Charles C., "The Soviet Port Clearing Operation in Bangledath, March 1972-December 1973," 35 pp., Jun 1974, (Published in Michael MccGwire, et al. (eds) Soviet Neval Policy: Objectyres and Constraints, (New York: Praeger Publishers, 1974) AD 780540

PP 124

Friedheim, Robert L. and Jehn, Mary E., "Anticipating Soviet Behavior at the Third U.N. Law of the Sea Conference USSR Positions and Driem mae," 37 pp., 10 Agr 1974, (Published in Soviet Naval Policy, ed. Michael MccGwire; New York: Praeger) AD 783 701

PP 125

Weinland, Robert G., "Soviet Neval Operations— Ten Years of Change," 17 pp., Aug 1974, (Published in Soviet Naval Policy, ed. Michael MccGwite; New York, Praeger) AD 783 962 PP 126 - Classified.

PP 127

Dragnich, George S., "The Soviet Union's Quest for Access to Nevel Facilities in Egypt Prior to tha June War of 1967," 64 pp., Jul 1974, AD 786 318 Market Broken and the second state of the

PP 12

Stoloff, Peter and Lockmen, Robert F., "Evaluation of Neval Officer Performance," 11 pp., (Presented at the 82nd Annual Convention of the American Psychological Association, 1874) Aug 1874, AD 784 012

PF 129

Holen, Arlens and Horowitz, Stenley, "Partiel Unemployment Insurance Senetits and the Exsent of Partial Unemployment," 4 pp., Aug 1974, (Published in the Journal of Human Resources, Vol. 1X, No. 3, Summer 1974) AD 784

PP 130

Dismukes, Bradford, "Roles and Missions of Sovier Naval General Purpose Forces in Wartime: Pro-SSBN Operation," 20 pp., Aug 1974, AD 786 320

P 131

Weinland, Robert G., "Analysis of Gorshkov's Navies in War and Peace," 45 pp., Aug 1874, (Published in Soviet Navel Policy, ed. Michael MccGwire; New York: Proeger) AD 786 319

PP 132

Kleinman, Samuel D., "Recial Differences in Hours-Worked in the Market: A Preliminary Report," 77 pp., Feb 1875, (Paper read on 28 Oct 1874 at Eastern Economic Association Convention in Albany, N.Y.) ADA 006 517

P 133

Squices, Michael L., "A Stochestic Model of Regime Change in Letin America," 42 pp., Feb 1875, AD A 607 912

PP 134

Root, R. M. and Cunniff, P. F.,* "A Study of the Shock Spectrum of a Two-Degree-of-Freedom Nonlinear Vibratory System," 39 pp., Dec 1976, (Pubtished in the condensed version of The Journal of the Acoustic Society, Vol 80, No. 8, Dec 1976, pp. 1314

*Department of Mechanical Engineering, University of Maryland

PP 135

Goudreau, Kenneth A.; Kuzmack, Richard A., Wriedemann, Keren, "Analysis of Closure Alternative: for Naval Stations and Naval Air Stations," 47 pp. 3 Jun 1975 (Reprinted from "Hearing before the Subcommittee on Military Construction of the Committee on Armed Servics, C.U.S. Senate, 93rd Congress, 1st Session, Part 2, 22 Jun 1973)

PP 136

Stallings, William, 'Cybernatics and Belvavior Therapy,' 13 pp., Jun 1975

PP 137 ·

Petersen, Charles C., "The Soviet Union and the Reopening of the Suez Canal: Mineclearing Operations in the Gulf of Suez," 30 pp., Aug 1975, AD A 015 376

*CNA Professional Papers with an AD number may be obtained from the National Technical Information Service, U.S. Department of Commerce, Springfield, Virginia 22151. Other papers are available from the author at the Center for Naval Analyses, 2000 North Beauregard Street, Alexandria, Virginia 22311.

- 1 -

PF 138

Statings, William, "BRIDGE: An Interactive Dislogue-Concretion Facility," 5 pp., Aug 1975 (Reprinted from IEEE Transactions on Systems, Man, and Cybernetics, Vol. 5, No. 3, May 1975)

PP 138

Morgen, William F., Jr., "Beyond Folklore and Fables in Forestly to Positive Economics," 14 pp., (Presented at Southern Economic Association Meetings November, 1974) Aug 1975, AD A 015 283

PP 140

Mahoney, Robert and Druehmen, Daniel*, "Simulation, Experimentation, and Context," 36 pp., 1 Sep 1975, (Published in Simulation & Games, Vol. 6, No. 3, Sep 1975)

*Mathematics, Inc.

PP 141

Mizrshi, Meurice M., "Generalized Hermite Pelynomiels," 5 pp., Feb 1976 (Reprinted from the Journel of Computational and Applied Mathemetics, Vol. 1, No. 4 (1975), 273-277).

*Research supported by the National Science Foundation

PP 142

Laskman, Robert F., John, Christopher, and Shughert, William F. II, "Models for Estimating Premature Lesses and Resruiting District Perferemence," 36 pp., Dec 1976 (Presented at the RAND Conference on Dofense Manpower, Feb 1978; to be published in the conference processings) AD A 020 443

PP 143

Marewitz, Stanley and Shermen, Allen (LCdr., USN), "Meintenance Personnel Effectiveness in the Nevy," 33 pp., Jan 1976 (Presented at the RAND Conference on Defense Manpower, Feb 1976; to be published in the conference proceedings) AD A021 581

PF 144

Durch, William J., "The Navy of the Republic of Chine — History, Problems, and Prospects," 66 pp., Aug 1876 (To be published in "A Guide to Asietic Pleets," ed. by Berry M. Blechmen; Navel Institute Press) AD A030 460

PP 145

Kelly, Anne M., "Port Visits and the "Internationalist Mission" of the Soviet Navy," 36 pp. Apr 1976 AD A023 436

PP 146

Palmour, Vernon E., "Afternatives for Increasing Access to Scientific Journals," 6 pp., Apr 1975 (Presented at the 1975 IEEE Conference on Scientific Journals, Cherry Hal, N.C., Apr 28 30; published in IEEE Transactions on Professional Cemmunication, Vol. PC-18, No. 3, Sep 1975) AD A021 798

PP 147

Kessler, J. Christian, "Legal Issues in Protecting Offshore Structures," 33 pp., Jun 1976 (Prepared under task order N00014-68-A-0091-0023 for ONR) AD A028 389

PP 148

McConnell, James M., "Military-Political Tasks of the Soviet Nary in War and Peace," 62 pp., Dec 1875 (Published in Soviet Oceans Development Seajely of Senate Commerce Committee October 1878) AD A022580

PP 149

Squires, Mishael L., "Counterforce Effectiveness: A Comperison of the Tsipis "K" Measure and a Computer Symulation," 24 pp., Mer 1978 (Presented at the International Study Association Meetings, 27 Feb 1976) AD A022 591

PP 150

Kelly, Anne M. and Petersen, Charles, "Recent Changes in Soviet Navel Policy: Prospects for Arms Limitations in the Mediterranean and Inden Ocean," 28 pp., Apr 1976, AD A 028 723

PP 151

Horowitz, Stenley A., "The Economic Consequences of Political Philosophy," 8 pa., Apr 1976 (Reprinted from Economic Inquiry, Vol. XIV, No. 1. Mar 1976)

PP 152

Mizrahi, Maurice M., "On Path Injegral Solutions of the Schrodinger Equation, Without Limiting Procedure," 10 pp., Apr 1976 (Reprinted from Journal of Mathematical Physics, Vol. 17, No. 4 (Apr 1978), 568-575).

*Research supported by the National Science Foundation

PP 153

Mitzshi, Meuriee M., "WKC Expensions by Peth Integrals, With Applications to the Anhermonic Oscillator," 9 137 pp., May 1976, AD A025 440 "Research supported by the National Science Foundation."

PP 154

Mizrahi, Maurice M., "On the Semi-Classical Expension in Quantum Mechanics for Arbstrary Hamittoniens," 19 pp., May 1976 (Published in Journal of Mathematical Physics, Vol. 18, No. 4, p. 786, Apr 1977), AD A025 441

PP 159

Squires, Michael L., "Soviet Foreign Policy and Third World Nations," 26 pp., Jun 1976 (Prepared for presentation at the Midwest Political Science Association meetings, Apr 30, 1976) AD AD28 388

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Stallings, William, "Approaches to Chinese Character Recognition," 12 pp., Jun 1976 (Reprinted from Pattern Recognition (Pergamon Press), Vol. 8, pp. 87-98, 1976) AD A028 692

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Morgan, William F., "Unemployment and the Pentagon Budget: Is There Anything in the Empty Pork Barrel?" 20 pp., Aug 1976 AD A030 455

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PP 159

McConnell, James M., "The Gorshkov Articles, The New Gorshkov Book and Their Relation to Policy," 93 pp. Jul 1976 (Published in Soviet Naval adluence Domestic and Foreign Dimensions, r.J. by M. McGwite and J. McDonnell, New York, Praeger, 1977) AD A029 227

PP 160

Wilson, Desmond P., Jr., "The U.S. Sixth Fleet and the Conventional Defense of Europe," 50 pp., Bep 1976 (Submitted for publication in Adelphi Papers, I.I.S.S., London) AD A030 457

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Melich, Micheel E. and Peet, Vice Adm. Rey (USN, Retired), "Fleet Commenders: Affect or Ashore?" 9 pp., Aug 1978 (Reprinted from U.S. Neval Institute Proceedings, Jun 1978) AD A030 466

PP 147

Friedheim, Robert L., "Parliamentary Diplomacy," 106 pp. Sep 1976 AD A033 306

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Lockman, Robert F., "A Model for Predicting Recruit Losses," 9 pp., Sep 1976 (Presented at the State annual Convention of the American Psychological Association, Weshington, D.C., 4 Sep 1976) AD A030 459

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Mahoney, Robert B., Jr., "An Assessment of Public and Elire Perceptions in France, The United Kingdom, and the Federal Regulatic of Germany, 31 pp., Feb 1977 (Presented at Conference "Perception of the U.S. — Soviet Balance and the Political Uses of Military Power" spansored by Director, Advanced Research Projects Agency, April 1978) AD 036 569.

PP 165

Jondrow, James M. "Effects of Trads Restrictions on Imports of Steel," 67 pp., November 1976, (Delivered at ILAB Conference in Dec 1976)

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Feldman, Paul, "Impediments to the Implementation of Queliable Changes in the Regulation of Urban Public Transportation," 12 pp., Oct 1976, AD A033 322 3

PP 166 - Revised

Feldman, Paul, "Why It's Difficult to Change Regulation," Oct 1976

PP 167

Kleinman, Samuel, "ROTC Service Commitments: a Comment," 4 pp. Nor 1976, (To be published in Public Choice, Vol. XXIV, Fall 1976) AD A033 305

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Lockman, Robert F., "Revalidation of CNA Support Personnel Selection Measures," 36 pp., Nov 1976

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Jacobson, Louis S., "Earnings Losses of Workers Displaced from Manufacturing Industries," 38 pp., Nov. 1976, (Delivered at !LAB Conference in Dec 1976), AD A031 909

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Brechling, Frank P., "A Time Series Analysis of Labor Turnovsr," Nov 1978 (Delivered at ILAB Conference in Dec 1976)

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Ralston, James M., "A Diffusion Model for GaP Red LED Degradation," 10 pp., Nov 1976, (Published in Journal of Applied Pysics, Vol. 47, pp. 4518-4527, Oct 1976)

PP 172

Cleasen, Kathleen P., "Unemployment Insurance and the Length of Unemployment," Dec 1976, (Presented at the University of Rochester Labor Workshop on 16 Nov 1976)

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Kleinmen, Samuel D., "A Note on Recial Differences in the Added-Worker/Discouraged-Worker Controversy," 2 pp., Dec 1976,:{Published in the American Economist, Vol. XX, No. 1, Spring 1976)

PP 174

Mahoney, Robert B., Jr., "A Comparison of the Brookings and International Incidents Projects," 12 pp. Feb 1877 AD 037 206

PP 176

Levine, Deniel; Stoloff, Peter and Spruill, Nancy, "Public Drug Treatment and Addict Grime," June 1976, (Publishea in Journal of Legal Studies, Vol. 5, No. 2)

PP 176

Felix, Wends, "Correlates of Retantion and Promotion for USNA Graduatss," 38 pp., Mar 1977, AD A039 040

PP 177

Lookman, Robert F. and Warner, John T., "Predicting Attrition: A Test of Alternative Approaches," 33 pp. Mar 1977. (Presented at the OSD/ONR Conference on Enlisted Attrition Xerex International Training Center, Leesburg, Virginia, 4-7 April 1977), AD A039 047

PP 178

Kleinmen, Samuel D., "An Evaluation of Nevy Unrestricted Line Officer Accession Programs," 23 pp. April 1977, (To be presented at the NATO Conference on Manpower Planning and Organization Design, Stress, Italy, 20 June 1977), 10 A039 048

PP 179

Stoloff, Peter H. and Belut, Stephen J., "Vacate: A Model for Personnel Inventory Planning Under Changing Messgement Policy," 14 pp. April 1977, (Presented at the NATO Conference on Menpower Planning and Organization Design, Stress, Italy, 20 June 1977), AD A039 049

PP 180

Horowitz, Stanley A. and Sherman, Allan, "The Characteristics of Nevel Personnel and Personnel Performance," 16 pc. April 1977, (Presented at the NATO Conference on Manpower Planning and Organization Design, Stress, Ite., 20 June 1977), AD A039 050

PP 181

Balut, Stephen J. and Stoloff, Peter, "An Inventory Planning Model for Navy Enlisted Personnel," 35 pp., May 1977, (Prepared for presentation at the Joint National Meeting of the Operations Research Society of America and The Institute for Management Science. 9 May 1977, San Francisco, Californie), AD A042 221

PF 182

Murray, Russell, 2nd, "The Quest for the Perfect Study or My First 1138 Days at CNA," 57 pp., April 1977

PP 183

Kassing, David, "Changes in Soviet Naval Forces," 33 pp., November, 1976, (Published as part of Chapter 3, "General Purpose Forces: Nevy and Marine Corps," in Arms, Men, and Military Budgets, Francis P, Hoeber and William Schneider, Jr. (eds.), (Crane, Russak & Company, Inc.: New York), 1977), AD A040 106

PP 184

Lockman, Robert F., "An Overview of the OSD/ ONR Conference on First Term Enlisted Attrition," 22 pp., June 1977, (Presented to the 39th MORS Working Group on Manpower and Personnel Flanning, Annepolis, Md., 28-30 June 1977), AD A043 318

PP 18

Kassing, Devid, "New Technology and Neval Forces in the South Atlantic," 22 pp. (This paper was the basis for a presentation made at the Institute for Forcego Policy Analyses, Cambridge, Mass., 28 April 1977), AD A043 619

PP 186

Misrahl, Meurice M., "Phese Space Integrals, Without Limiting Procedure," 31 pp., May 1977, Unvited paper presented at the 1977 NATO Institute on Path Integrals and Their Application in Quantum Statistical, and Solid State Physics, Antwerp, Belgium, July 17-30, 1977) (Publishec: in Journal of Methematical Physics 19(1), p. 298, Jan 1978), AD A040 107

PP 18

Coile, Russell C., "Nomography for Operations Research," 35 pp., April 1977, (Presented at the Joint National Meeting of the Operations Research Society of America and The Institute for Management Services, San Francisco, California, 9 May 1977), AD A043 620

PP 188

Durch, William J., "Information Processing and Outcome Forecasting for Multilateral Negotiations: Testing One Approach," 53 pp., May 1977 (Prepored for presentation to the 18th Annual Convention of the International Studies Association, Chae-Park Plaza Hotel, St. Louis, Missouri, March 16-20, 1977), AD A042 222

PP 181

Coile, Russell C., "Error Dytection in Computerized Information Retrieval Data Bases," July, 1977, 13 pp. Presented at the Sixth Cranfield International Conference on Machanized Information Storage and Retrieval Systems, Cranfield Institute of Technology, Cranfield, Bedford, England, 26-29 July 1977, AD A043 580

PP 19ù

Mahoney, Robers E. Jr. "European Perceptions and East West Competition," 96 pp., July 1977 (Prepared for presentation at the annual meeting of the International Studies Association, St. Louis, Mo., March, 1977), AD A043 661

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Sawyer, Ronald, "The Independent Field Assignment: One Man's View," August 1977, 25 pp.

PP 19:

Holen, Arlene, "Effects of Unemployment Insurance Entitlement on Duration and Job Search Outcome," August 1977, 6 pp., (Reprinted from Industrial and Labor Relations Review, Vol., 30, No. 4, Jul 1977)

PP 193

Horowitz, Stanley A., "A Model of Unemployment Insurance and the Work Test," August 1977, 7 pp. (Reprinted from Industrial and Labor Relations Review, Vol. 30, No. 40, Jul 1977)

PP 194

Classen, Kethleen P., "The Effects of Unemployment Insurance on the Duration of Unemployment and Subsequent Earnings," August 1977, 7 pp. (Reprinted from Industrial and Labor Relations Review, Vol. 30, No. 40, Jul 1977)

PP 195

Brechling, Frank, "Unemployment Insurance Taxes and Labor Turnover: Summary of Theoretical Findings," 12 pp. (Regrinted from Industrial and Labor Relations Review, Vol. 30, No. 40, Jul 1977)

PR 196

Raiston, J. M. and Lorimor, O. G., "Degradation of Bulk Electroluminescent Efficiency in Zn, O-Doped GaP LED's," July 1977, 3 pp. (Respirited from IEEE Transactions on Electron Devices, Vol. ED 24, No. 7, July 1977)

P 197

Wells, Anthony R., "The Centre fer Nava Analyses," 14 pp., Dec 1977, AD A049 107

PP 196

Classen, Kathleen P., "The Distributional Effects of Unemployment Insurance," 25 pp., Sept. 1977 (Presented at a Hoover Institution Conference on Income Distribution, Oct 7-8, 1977)

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Powers, Bruce F., "The United States Nevy," 40 pp. Dec 1977. (To be published as a chapter in The U.S. War Machine by Salamander Books in England during 1978), AD A049 100

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PP 209 - Classified.

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Code, Russell C., "Comments on: Principles of Information Retrieval by Menfred Kochen, 10 pp., Mer 78, (Published as a Letter to the Editor, Journal of Documentation, Vol. 31, No. 4, pages 296-301, December 1975)

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Mangel, Merc, "L' ochestic Mechanics of Molecule Ion Molecule Reactions," 21 pp., Jun 1978 (To be submitted for publication in Journal of Mathematical Physics)

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*Portions of this work were started at the Institute of Applied Mathematics and Statistics, University of British Columbia, Vsnovuver, B.C., Canada

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